

SUPPORT FOR THE AMENDMENTS

The amendments to the claims are supported by the specification and the original claims. Accordingly, no new matter is believed to have been added to the present application by the amendments submitted above.

REMARKS

Claims 1 and 3-15 are pending. Favorable reconsideration is respectfully requested.

As set forth in Claim 1, the present invention relates to a non-irradiated modifier for a resin comprising:

non-irradiated powder particles, where

the non-irradiated powder particles have an average particle size of 20 μm or more,

the non-irradiated powder particles comprise powder particles having a particle size of 10 μm or less, and the powder particles having a particle size of 10 μm or less account for less than 30% by mass of the modifier, based on 100% by mass of the modifier, and

where the powder particles having a particle size of 10 μm or less becomes more than 30% by mass of the modifier, based on 100% by mass of the modifier, when the non-irradiated modifier are irradiated with an ultrasonic wave of 40 W for 5 minutes,

wherein the modifier is obtained by:

adding one or more copolymerizable vinyl-based monomers to a rubber polymer latex comprising an acrylic rubber,

graft-polymerizing the copolymerizable vinyl-based monomers and the rubber polymer latex to obtain a graft copolymer having an average particle size of 600 to 900 nm, and

spray-drying the graft copolymer.

The rejection of the claims under 35 U.S.C. §102(b)/§103(a) over Rauch is respectfully traversed. This reference fails to disclose or suggest the claimed a non-irradiated modifier for a resin.

The recitation "less than 30% by mass" includes zero as a lower limit. In fact, IM-3 of the Example of the present invention (Table 1) is 0% by mass before irradiating an ultrasonic wave. Accordingly, Applicants have removed "less than 30% by mass" from Claim 1.

According to the Examiner's comments made in the Office Action, the Examiner appears to misunderstand the present invention. The following changes occur before and after ultrasonic wave treatment.

<BEFORE irradiating with an ultrasonic wave>

Particles having a particle size of 10 μm or less of non-irradiated powder particles are less than 30% by mass of a non-irradiated modifier, based on 100% by mass of the non-irradiated modifier.

<AFTER irradiating with an ultrasonic wave>

Particles having a particle size of 10 μm or less becomes more than 30% by mass of an irradiated modifier, based on 100% by mass of the irradiated modifier (the irradiated modifier includes irradiated powder particles). That is, not only a particle size of 10 μm or less of the powder particles included in a non-irradiated modifier are irradiated, but the entire modifier is irradiated.

When a non-irradiated modifier (including a particle size of 10 μm or less of non-irradiated powder particles) is irradiated with an ultrasonic wave, the particles of the irradiated modifier exhibits good dispersibility, as a result, the ratio of particles having the particle size of 10 μm or less increased.

The Examiner stated that with respect to Rauch, the reference clearly disclose non-irradiated powder particles which meet the requirements of Applicant's preferred graft copolymers both in terms of compositional makeup and latex particle size, per Claim 16. Applicants disagrees with that assertion for the following reasons.

Amended Claim 1 of the present invention discloses that a graft copolymer having an average particle size of 600 to 900 nm in the latex. On the other hand, Rauch discloses that 166 nm of a graft copolymer in Example 2 (col. 9, line 66) and 250 nm of a graft copolymer in Example 1 (col. 9, line 21).

Applicants performed an additional experiment to demonstrate the differences between the present invention and Rauch, by comparing impact strength and dispersibility of a sample which corresponds to Rauch et. al. (IM-5) and that of the present invention (IM-2). The average particle size of 250 nm in the latex (IM-5) which corresponds to the sample disclosed in Rauch et. al. was both inferior in Izod impact strength test and dispersibility to the average particle size of 600 nm in the latex (Example 2, A modifier IM-2) of the present invention. These experiments are described in the executed Rule 132 Declaration from Mr. Wakita submitted herewith.

Accordingly, Rauch does not disclose or suggest a graft copolymer having an average particle size of 600 to 900 nm in the latex. The graft copolymer having an average particle size of 600 to 900 nm in the latex, which is comparatively large size used in the modifier for resin of the present invention, exhibits a good dispersibility and sufficient impact strength (paragraph [0005] and [0018]). Therefore, Rauch is not capable of achieving the present invention.

In view of the foregoing, Rauch fails to disclose or suggest the claimed non-irradiated modifier for a resin. Accordingly, the subject matter of the pending claims is not anticipated by or obvious over that reference. Withdrawal of this ground of rejection is respectfully requested.

The rejection of the claims under 35 U.S.C. §112, first paragraph, is believed to be obviated by the amendment submitted above. The subject matter of Claim 16 has been incorporated into Claim 1. The graft copolymer having an average particle size of 600 to 900 nm which is comparatively large size used in the modifier for resin of the present invention is recovered by spray drying. As a result, particles having a good dispersibility can be produced. In of this amendment, withdrawal of this ground of rejection is respectfully requested.

The rejection of the claims under 35 U.S.C. §112, second paragraph, is believed to be obviated by the amendment submitted above. Claim 1 has been amended to specify a non-irradiated powder. In addition, Claim 1 has been amended to remove the recitation of less than 30% by mass and having a particle size of 10 μm or less.

In view of the foregoing, the claims are definite within the meaning of 35 U.S.C. §112, second paragraph. Withdrawal of this ground of rejection is respectfully requested.

Regarding the withdrawn claims, since those claims depend from Claim 1, Applicants request rejoinder to the withdrawn claims upon the allowance of Claim 1.

Application No. 10/589,501
Reply to Office Action of April 13, 2011

Applicants submit that the present application is in condition for allowance. Early notice to this effect is earnestly solicited.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C., L.L.P.

Customer Number

22850

Tel: (703) 413-3000
Fax: (703) 413 -2220
(OSMMN 08/03)

James J. Kelly, Ph.D.
Attorney of Record
Registration No. 41,504